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ARCHEOLOGY AND ETHNOLOGY.<sup>1</sup>

**The Contention of Mr. J. D. McGuire** that stone polishing must be and is as old as stone chipping, and that we have no evidence of a time when man did not know how to polish stone and make pottery, induced me when in Europe last summer (1894) to ask several explorers of caves and drift beds in Italy, England and Germany, whether, like Mr. McGuire, they had come to suspect the presence of pottery or polished stone in these oldest human culture layers.

Professor Dr. Johannes Ranke, of Munich, has been kind enough to send me the following very interesting series of notes upon the subject, and I hereby print them subjoined to my questions (in italics) as originally propounded to him.—H. C. MERCER.

**The Results of Cave Exploration in Germany.**—I. *Have you found proof in German (Austria-Hungary, etc.) caves, of a time when man was in a Paleolithic state—chipped but could not polish stone—and make pottery?*

Ans. My observations and investigations of prehistoric man are given in full in my book "Der Mensch," Vol. II, (II edition, 1894, Leipzig, Sibleoz Institute), where answers to all your questions may be found.

Further, I would say, that the objects found in one layer of a cave are only in very rare cases proved to be contemporaneous, for example, the case of the celebrated excavations of Dr. Nüsch, Schaffhausen, Switzerland, in "Schweizerbild," (1. Der Mensch, II, p. 454); in other caves many objects of different epochs, some even modern, are found in the same layer. It is on these grounds that I can give no complete proof regarding the *cave finds* in the district referred to by you, Austria-Hungary, Germany, Switzerland.

On the contrary, we have in Germany, Austria-Hungary, places of discovery, not properly caves, in undisturbed diluvial layers, in which objects found in one layer are entirely proved to be of contemporary date. The place of discovery near Schaffhausen is not a veritable cave, but a shelter under over-hanging rocks, where a layer has been found, layer No. 4, with many remains of the reindeer period, cave bear, diluvial horse, etc. No polished, but only chipped stone; no pottery, no dog. The place of discovery by Saubach offered undisturbed

<sup>1</sup>This department is edited by H. C. Mercer, University of Pennsylvania.

diluvial layers with bones of mammoths, rhinoceros, cave lion, and cave tiger, only chipped; no polished stone implements, no pottery, no dog.

The best examined diluvial places of discovery (reindeer period) in Germany, on the Schasten Quelle, gives only chipped, no polished stone implements, no pottery, no dog.

In the celebrated caves, Ofnet, Hohlefels, Raubersshohle, in the layer of discovery of the diluvial man, chipped stone implements were found with pottery, but the pottery is much later and belongs mostly to the Hallstate period. From the Kesslerloch I have myself found a fragment of pottery, but it is much more recent. Where fragments of pottery have been found in Germany together with remains of diluvial man, the fragments of pottery are, in my opinion, decidedly much later. All clean places of discovery in undisturbed diluvial layers yield no pottery. Fragments of pottery are wanting also in the station lately so much talked of, containing mammoth, etc., in Piedmont (v. my book, II, p. 493).

II. *Has pottery been found in layers with mammoth, rhinoceros and cave bear, etc., in German caves?*

As above mentioned mammoth, rhinoceros, cave bear, have been found with pottery in the same layer, but not contemporaneously, the potsherds are undoubtedly of much more recent date. The layers in question were not undisturbed; in the undisturbed layers at Schaffhausen, no fragments of pottery are found.

III. *Has polished stone been found in similar layers?*

Where polished stone implements have been found in the same layer with diluvial remains, the layer has not been undisturbed. Fragments of pottery and other things were found of the Neolithic period or a still later period. In undisturbed diluvial layers, in our investigated districts, neither polished stone implements nor fragments of pottery have been found.

IV. *Is there any evidence in German caves or gravel beds to prove or disprove subdivisions of the oldest stone period (Paleolithic) into river drift, Mousterien, Solutrien and Magdalenien (of Mortillet)?*

For this kind of discovery we are without the necessary ground. The richest discoveries made up to this time, at least in Germany, have been of the Reindeer period.

V. *From excavation of German caves do you think that where very prominent and conspicuous, they contain in layers one above another, traces of all savage people who have inhabited the region, i. e., that they*

*were places of temporary resort used at all times in man's history, or that they were only at one age, the fixed habitations of a race of Cave Men?*

Our caves in Germany point out in their contents a now almost uninterrupted chain of discoveries from the diluvial period, through all the centuries to modern times. Besides bones of diluvial animals, I have found in the same layer pieces of or example of a cooking-pot, also fragments of the Hallstate period. An exact division of layers is almost impossible to accomplish. An exception is offered in the above referred to station of Dr. Nüesch in Schaffhausen (v. my book) where the different layers are distinctly divided. There one finds layers of the different periods one above the other, of all peoples who lived in that region. The caves are like towns, periodical refuges, which were used in all ages of man, and still are to-day.

In the cave region of the Franconian Jura, in Bavaria, in the so-called Franconian Switzerland, where you have already excavated yourself, a people in the Neolithic period have been proved to have lived in many grottoes and caves. Our Neolithic people were also cave dwellers there, as well as the diluvial man who lived there, whose traces, mixed with more recent, have been proved to lie there. "Cave Men" were also there before our Neoliths (v. my book, p. 545).

VI. *Have you noticed any lines of direction of migration in the cave evidence for all Europe? Do the layers get thicker and the remains older as you advance geographically in any given direction, so as to indicate that man of that time came to or from any direction?*

I have been unable to find any traces of the wandering of diluvial man (v. in my book in map of diluvial discoveries on page 418).

JOHANNES RANKE.